

Shasta and of the Sierra and the Cascades' (pp. 85, 86); 'Mammals of Shasta' (pp. 87-107); 'Birds of Shasta and Vicinity' (109-134); 'Notes on the Distribution of Shasta Plants' (pp. 135-169); 'Index' (pp. 171-179).

In the work of exploration, Dr. Merriam was aided by Vernon Bailey, chief field naturalist of the Biological Survey, Wilfred H. Osgood, Walter K. Fisher, and Richard T. Fisher, assistants. In addition to the work on and near Shasta, three cross sections were made of the Sierra Nevada north of latitude 39°, a line was run from Black Rock Desert, Nevada, to Shasta, and from Shasta across the wild and little known mountains between Shasta and the ocean, to Humboldt Bay.

The topographical features of Shasta are illustrated by numerous half-tone cuts and plates, from photographs, and the floral and faunal features, as influenced by altitude, air currents, and slope exposures, are duly set forth and discussed. The life zones of Shasta are the Upper Sonoran, Transition, Canadian, Hudsonian, and Arctic-Alpine. "Shasta stands on a Transition zone plane, with a dilute tongue of Upper Sonoran approaching its northern base by way of Klamath and Shasta valleys. . . . The Upper Sonoran element in the region is dilute and is limited to Shasta Valley at the north base of the mountain, which it reaches by way of the Klamath country on the north and northeast. It has no connection whatever with the Upper Sonoran of the Sacramento Valley on the south." The Transition extends up to an average altitude of about 5,500 feet; the Canadian to about 7,500 feet; the Hudsonian to about timber line, or to 9,500 feet; the Alpine to about 11,000 feet, above which is the bare ice-clad summit, rising to 14,500 feet. The species of mammals, birds, and plants of the several zones are tabulated in accordance with their ranges and restrictions. The transition between zones is, of course, gradual, there being an overlapping belt between each of about 800 feet.

The list of birds of Shasta and vicinity numbers 136 species, and is based almost wholly on the observations of various members of the party made during the season of 1898, the chief data from other sources being derived from Mr. C. H. Townsend's 'Field Notes on the Mammals, Birds and Reptiles of Northern California,' published in 1887. In addition to the regular assistants already mentioned, observations on the birds are credited to Miss Florence A. Merriam and Mr. John H. Sage, who were also members of the general field party.

Dr. Merriam's report, it is needless to say, is not only a valuable contribution to our knowledge of the physical geography and the fauna and flora of Shasta, but also throws much light upon the causes, both local and general, that determine the distributional limits of species. — J. A. A.

Palmer's 'The Avifauna of Pribilof Islands.'—Among the many important contributions to the natural history of the Pribilof Islands contained in Part III of the recently issued report of the United States

Fur Seal Commission (1896-97)<sup>1</sup> is a report on the birds by Mr. William Palmer,<sup>2</sup> prepared from his own "experience and collections on the islands from May 27 to August 11, 1890, and partly from the published results of the visits of Mr. Henry W. Elliott, in 1872-73 and 1876," and also on "the literature, the collections in the United States National Museum, and from the naturalists who have visited the group in recent years. Of the 69 species here listed, 20 are apparently for the first time recorded from the islands, and a large amount of new and interesting information on the habits, changes of plumage, etc., is here for the first time published. The list, however, is necessarily "incomplete, as the winter-occurring birds have been little noted." Mr. Palmer gives an account of the topography of the islands, in relation to its influence on the distribution of the birds, with a sketch of its ornithological history, including a formal bibliography of the subject. The geographical distribution of the Pribilof birds is analyzed at length (pp. 363-369), and there are several pages (pp. 369-372) on their migration, in which Mr. Palmer gives a somewhat free rein to his imagination in supposing that the ancestors of the present bird population of the Pribilofs had, "in the remote geological past," "a more happy course over contiguous land areas which have since been submerged," to help them in their migratory journeys between the Aleutian and Hawaiian groups of islands.

The list proper occupies pp. 373-427, and contains, besides full bibliographical references to the literature of the subject, usually extended notes on their habits, abundance, and distribution in the islands, and much valuable information upon the growth, character, and changes of plumage in many of the species. This, in the case of the Cormorant, affords basis for generalizations and hypotheses regarding the evolution of the Cormorant group. The genus *Arenaria* receives extended notice, with the result that two species are recognized from North America, namely (1) *A. interpres*, the form of the Old World, found also in "western Alaska from the Aleutians to Point Barrow"; also in Greenland. "Breeds from Japan and Alaska westward around the more northern British Islands, Azores (?) [!], and Greenland." (2) *A. morinella*, in

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<sup>1</sup>The Fur Seals and Fur Seal Islands of the North Pacific Ocean. By David Starr Jordan, President of Leland Stanford Jr. University, Commissioner in charge of Fur-Seal Investigations of 1896-97. With the following Official Associates: Leonhard Stejneger and Frederic A. Lucas, of the U. S. National Museum; Jefferson F. Moser, Lieutenant-Commander, U. S. N., in command of the U. S. Commission Steamer 'Albatross'; Charles H. Townsend, of the U. S. Fish Commission; George A. Clark, Secretary and Stenographer; Joseph Murray, Special Agent. With special papers by other contributors. Washington: Government Printing Office. 1898 [= 1899]. 4 vols., 4to., with numerous maps, plates, and text illustrations.

<sup>2</sup>*Op. cit.*, Part III, 1899, pp. 355-431, pl. xxxviii-xli.

"America from the Arctic regions north of Hudson Bay and westward to the Mackenzie River, along the Atlantic watershed, though generally coastwise, to Patagonia and the Falkland Islands. Rare on the Pacific slope. Breeds about Hudson Bay, northward and eastward." *A. morinella* (Linn.) is distinguished as smaller than *A. interpres* (Linn.) with chestnut instead of black predominating above, with more clove brown, and with orange instead of vermilion feet. Detailed descriptions of the various plumages of each form are given, with a table of comparative measurements. The name *morinella* is based on Catesby's pl. lxxii, "The Turnstone or Sea-Dottrel."

Another innovation in nomenclature is the use of the name *Hirundo erythrogastra unalaschkensis* (Gmelin) for the Alaskan Barn Swallow (p. 422). Although seen on St. George Island, no specimens appear to have taken there.

Plate xxxviii gives several views on Walrus Island, showing the breeding places of sea birds; pl. xxxix represents nine eggs of the Pacific Murre, selected to show variation in size, shape, and markings; pl. xl and xli illustrate the "development of feathers." The paper forms a valuable contribution to North American ornithology. — J. A. A.

Howe and Sturtevant's 'Birds of Rhode Island.'<sup>1</sup>—This is the first attempt at an exhaustive enumeration of the birds of the State of Rhode Island, and has been commendably well done. It consists of a 'Review of former publications on Rhode Island Birds, and of State Collections' (pp. 7-9); 'Migration, with List of Breeding Birds' (pp. 10-16), and an account of 'Cormorant Rock' (pp. 17-22), followed by a judiciously annotated list of the 291 species known to occur in the State. There is a supplemental list of 3 'Extirpated Species' and a 'Hypothetical List' of 10 species. The House Sparrow is included in the 291 species, and also the Painted Bunting, given as "an accidental visitant, or escaped cage bird," on the basis of a specimen taken in 1882. This latter species would have found a more fitting resting place in the Hypothetical List. The Blue Grosbeak is recorded under the head of 'Errata, Additions, etc.' on p. 102, on the basis of a young bird taken by Mr. F. T. Jencks at Drownville, R. I., Oct. 12, 1899. It is, however, omitted from the Indexes. It is of interest to note that both the Purple and the Bronzed Grackle are given, the former as occurring in the southern and the latter in the northern portions of the State. *Ammodramus caudacutus subvirgatus*

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<sup>1</sup>The | Birds of Rhode Island. | By Reginald Heber Howe, Jr., | Member of the Nuttall Ornithological Club, | and | Edward Sturtevant, S. B., | Instructor of Natural Science at Saint George's School, Newport. | Members of the American Ornithologists' Union. | Illustrated. | 1899.—Svo, pp. 1-111, frontispiece and 5 halftone plates.